

Heis himself, with a large number by Eylert, Weber, and others, and is a most valuable addition to the observational results bearing upon this, as yet, little-understood phenomenon. We may remind the reader who is desirous of fully acquainting himself with the literature of the subject, that Dr. Julius Schmidt, now Director of the Observatory at Athens, published in similar detail his observations of the zodiacal light in the years 1843-55 (*Das Zodiacallicht*, Braunschweig, 1856).

**THE NEXT RETURN OF ENCKE'S COMET.**—The appearances of this comet at nearly ten-year intervals in 1819, 1829, 1838, 1848, 1858, and 1868 took place under circumstances which were more or less favourable for observation in this hemisphere; these conditions, however, will not attend the ensuing return to perihelion, which, with the mean motion found by Dr. von Asten for 1875, neglecting the small effect of perturbation, would occur about the 27th of July, 1878; and if the path in the heavens be calculated on this assumption, it will appear that observations will hardly be practicable except in the southern hemisphere in August. The nearest approach to this track is that which the comet followed in 1845, when a few observations only were obtained with difficulty at Rome, Washington, and Philadelphia. With regard to the effect of perturbation upon the length of this comet's period since the year 1819, when its periodicity was first detected, it may be remarked that the longest revolution was that from 1842-45, which extended to 1215.6 days, and the shortest, that from 1868-71, 1200.2 days; difference of extremes, 15½ days.

**COMET 1874 (III.), COGGIA.**—A third computation of the orbit of this fine comet, founded upon observations between April 20 and July 16, by Herr Geelmuyden, of Lund, has resulted in an ellipse with a period of 10,445 years, confirming the great length of the revolution which resulted from the calculations of Prof. Tietjen and Herr Schulhof. There appears to be no probability of the comet having previously visited these parts of space within historical times.

**THE LATE PROF. ARGELANDER.**—The last part of the *Vierteljahrsschrift der Astronomischen Gesellschaft*, x. Jahrgang, Drittes Heft, contains an interesting memoir of this distinguished astronomer by his successor, Prof. Schönfeld. As an authoritative summary of his long and laborious services to sidereal astronomy in particular, this memoir will be found a useful reminder. Argelander was born at Memel on March 22, 1799, and died at Bonn on February 17, 1875. His first astronomical observation is stated to have been one of the occultation of the Pleiades on August 29, 1820.

#### NOTES ON A SUPPOSED MARRIAGE EMBLEM OF AMERICAN INDIAN ORIGIN

A REMARKABLE form of "Indian relic," varying somewhat in details, but having much in common, and never approaching any other stone implement or ornament, is occasionally met with in the "finds" of the Atlantic coast States and westward to the Mississippi. In New Jersey they are less abundant, I believe, than in the States west and south, but a sufficient number of them have been gathered by myself and others to indicate their having been, at one time, a marked feature in the dress of our aborigines.

This "relic," however varied in its outline, always suggests a brooding bird, especially when in the position in which it is placed in Fig. 1. So far as I have made examination of these specimens, and met with notices of them in various publications, they are all manufactured from comparatively soft stone, are accurately outlined, highly polished, and drilled diagonally at the lower corners.

Of the many suggestions made as to their significance,

as knife-handles, corn-huskers, idols, &c., I have met with but one that seemed at all probable; and this, I think, is rendered the more probable from circumstances connected with the discovery of various specimens, and certain peculiarities of the fragment of one here figured (Fig. 2).

Writing of one of these relics, Mr. Henry Gillman, in the Smithsonian Annual Report for 1873, p. 371, states: "I have learned, through an aged Indian, that in olden



FIG. 1.

time these ornaments were worn on the heads of Indian women, but only after marriage. I have thought that these peculiar objects, which are always made of some choice material, resemble the figure of a brooding bird; a familiar sight to the 'children of the forest'; that thus they are emblematic of maternity, and as such were designed and worn."

Fig. 2 represents the "tail end" of one of these "brooding birds." Probably broken by accident, whether the head was lost or both halves preserved, it will be seen that the specimen has been considered of considerable value, inasmuch as this half has been carefully squared and polished at the point of fracture, and a hole drilled through it, to enable its owner to suspend her rude bracelet or her necklace. Surely, had the unbroken implement (?) been a knife-handle or corn-husker, the fragment such as is here figured would not subsequently have been utilised as an ornament. If put to so commonplace a use in its entirety, a half of one would have no beauty in it, even in

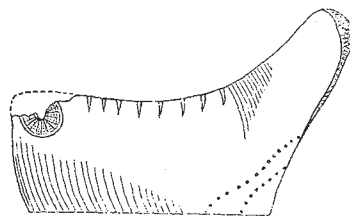


FIG. 2. Natural size.)

the eyes of a Stone-Age savage. A second noticeable feature of this broken specimen is the series of eight deeply cut notches along the "back," or upper margin. These are cut entirely across the narrow ridge forming the back, and extend equally down either side, as seen in the illustration. If an entire specimen, such as is represented on the woman's head (Fig. 1), is or was worn on the head of an Indian woman, but only after marriage, and so emblematic of maternity, then is it not

reasonable to presume that these marks are records, not merely ornamental lines, and if records, of children born? Such a carved stone, once proudly worn by an Indian of high rank, if broken, as this has been, would naturally be preserved; and that it is but the half of such an one, as seen in Fig 1, is proved by the fact of a hole being drilled in the lower corners, as shown by the dotted lines; a hole that became of no use when the specimen was broken, or at least was less well placed than that subsequently drilled in order to suspend the relic as an ornament, as an ear-ring, or addition to a necklace, as previously suggested.

The traces, as they really are now, of the graves of our aborigines occasionally contain a single specimen of the above-figured relic. So far as I have been able to examine these graves, such relics are never associated with the stone axes and spear-heads characterising the graves of adult males, but simply with other forms of stone ornaments, and a single small mortar and pestle, or earthenware vase. In one instance the "brooding bird" was so placed with reference to the narrow strip of discoloured earth that marked where the body had been laid, as to show conclusively that the relic was attached to the hair, as shown in Fig. 1.

If we examine a series of these relics, it will be at once seen that every one has holes drilled at the lower corners. Such specimens could only be worn upon the top of the head, without being upside down, as would necessarily be the case had they been suspended. It must, too, be borne in mind that these relics are nowhere very abundant, but on the other hand, nowhere unknown north of Mexico. Had they been knife-handles, as suggested by Schoolcraft, or corn-huskers, as suggested by various writers, certainly they would be much more abundant than they really are. Indeed, in considering them as ornaments for married women, I am forced, in consideration of the scanty number that have been collected, to restrict them to women prominent in their tribes, the wives of kings, chiefs, and eminent warriors. If this be true, then the eight birth-records on Fig. 2 are those of "Indian princes," it may be. I must admit, however, that this broken specimen is the only one that I have seen having like marks cut upon it; but such record marks, as I believe them to be, are quite common upon other forms of stone ornaments, particularly those stone tablets and crescents that I have elsewhere (Smithson. Ann. Rep. for 1874) called "breast-plates."

These facts considered, I think that the suggestion of Mr. Gillman, based upon information received from an aged Indian, truly explains what this much-discussed relic truly is—an ornament for married women, an emblem of maternity.

CHARLES C. ABBOTT

Trenton, New Jersey, U.S.A.

### THE BRITISH ASSOCIATION REPORTS.

*Report of the Committee on Luminous Meteors*, by Mr. James Glaisher.—The report related, as usual, to meteors doubly observed, and to aërolites, the portion having reference to the latter being the more interesting, as the falls of aërolites which have been placed on record since the last report were more than ordinarily numerous and interesting. A mass of meteoric iron fell on Aug. 24, 1873, at Maysville, California, and is one of the very few metallic irons the actual descent of which has been witnessed. In the following month a number of meteorites fell near Khairpur, in the Punjab; and it is also related that in the month of December, when the British army halted on the banks of the Prah, an aërolite fell in the market-place of Coomassie, and was regarded by the native population as a portent of evil. On the 14th and 20th of May, 1874, aërolites fell at Castalia, in North Carolina. The last stone-fall of the past year took place near Iowa city on the 12th of February, 1875, and of this meteorite also special analyses were made in the United States, of which some unforeseen results were lately announced by their

author, Mr. A. W. Wright. In England no detonating meteor has been observed this year; and the brightest meteor recorded since the last report occurred on the 1st of September last, taking its course over the north of England, or Scotland, where clouded skies must have prevailed, as its flash was like that of lightning. Other bright meteors occurred on the 2nd and 16th of September, 11th of October, 17th of December, 9th of March, 12th of April, and 2nd and 4th of May in this year. A meteor burst with a loud detonation over Paris and its neighbourhood on the 10th of February; it was of great size and brilliancy, and left a cloud-like streak of light on its track for more than half an hour. No duplicate observation of it was obtained in England. Another fireball fell at Orleans on the 9th of March, and of this two good observations appeared to have been obtained in England, which may assist to determine its real height. During the annual meteor showers of the past year very unfavourable weather generally prevailed for recording meteor tracks, and few meteors were seen on those nights when the usual expectations of their appearance were entertained. A thorough examination of all the observations collected by the committee since the publication of the Meteor Atlas in 1867, with the view of extending and correcting the list of general and occasional meteoric showers which it embraced, has been continued with satisfactory results under the direction of Mr. Greg. The report also contained a *résumé* of the contents of the recent publications on the subject of meteoric astronomy. Mr. Glaisher remarked that the report was the result of considerable labour performed by Prof. A. S. Herschel, but he pointed out that the work of properly treating meteor observations had now become so great as to be beyond the power of the Association to grapple with, and alluded with satisfaction to the arrangements being carried out by M. Leverrier. A discussion took place on the connection of comets and meteors, in the course of which Sir William Thomson said that there was nothing to justify the assertion that the mass of comets was so small as was sometimes supposed, and he considered there was good evidence for believing that the comet's tail was really a train of meteors.

*The Report of the Committee on British Rainfall*, by Mr. G. J. Symons, began by giving an epitome of the rainfall work done in connection with the British Association during the last fourteen years. It then referred to the steps taken after the meeting at Belfast to obtain additional stations in Ireland, which were so successful that the committee received 190 offers of assistance. The acceptance of all these offers would have involved an expenditure far beyond the funds at the disposal of the committee, and they were therefore reluctantly compelled to make a careful selection, resulting, however, in the establishment of sixty-six stations, many of them in localities of extreme importance. In the past fifteen years the number of stations had been raised from 241 to nearly 2,000. The influence of size and shape on the indications of rain gauges had been experimentally examined, and also the effect of height above ground. The laws which regulate the seasonal distribution of rainfall had been to a certain extent ascertained. The secular variation of annual fall had been approximately determined. A code of rules had been drawn up for observers. Nearly 250 stations have been started at the cost of the Association, and 629 stations have been visited, and the gauges examined by the secretary. They had obtained and supported observations on mountain tops, and places difficult of access where no observations had been made, in Cumberland, Westmoreland, Wales, and Scotland, and also an extensive series in Ireland. When the works actually in hand are completed, they will furnish an index to all the observations hitherto made.

The committee appointed to examine and report upon the reflective powers of silver, gold, platinum, and speculum metal did not present any report, but was reappointed at its own request, with the addition of Prof. Ball.

Owing to the absence of Col. Babbage in India, the committee for estimating the cost of Mr. Babbage's analytical engine had not met, but it requested to be reappointed. No report was received from the committee for the determination of the mechanical equivalent of heat, but it was stated that Prof. Joule's experiments were making good progress. The committee on teaching physics in schools was reappointed. Also the committee for considering the possibility of improving the methods of instruction in elementary geometry was reappointed, with the addition of Prof. Henrici and Mr. J. W. L. Glaisher, and requested to consider the syllabus of the Association for the improvement of geometrical teaching, and to report thereon.

Mr. W. C. Roberts read a note from the committee which had